PROCEEDINGS
Volume 1

Educational Technology World Conference (ETWC) 2016

Theme:
“Educational Technology to Improve Quality and Access of Education for Prosperous Society”

Editors:
Prof. Atwi Suparman
Prof. Burhanuddin Tola
Prof. Ivan Hanafi
Prof. Karnedi
Dr. Trini Prastati
Dr. Yuli Rahmawati

UNJ Press
PROCEEDINGS: Volume 1

Educational Technology World Conference (ETWC) 2016
“Educational Technology to Improve Quality and Access of Education for Prosperous Society”


Advisors:
- Muhammad Nasir, Minister of Research, Technology, and Higher Education of the Republic of Indonesia
- Anies Baswedan, Minister of Education & Culture of the Republic of Indonesia.

Steering Committee:
- Djaali, UNJ Rector
- Tian Belawati, UT Rector
- Nyoman Jampel, Undiksa Rector
- I Gusti Ayu Diah Werdhi Srikandi WS, Unmar Rector

Chairman (Head of Organizing Committee):
- Atwi Suparman

Vice-Chair:
- Ahmad Ridwan
- Sucl Isman
- Muchis R. Luddin
- Gusti Putu Sudiartha

Secretary:
- Rusmono

Vice Secretary:
- Muchlas Suseno
- Putrini Maha Dewi

Editors:
- Atwi Suparman
- Burhanuddin Tola
- Ivan Hanafi
- Karnedi
- Trini Prastati
- Yuli Rahmawati

Secretariat:
- Eva Leiliyanti
- Listya Ayu Saraswati
- Putri Restoening M
Design & Layout:
- Suzanna Romadhona
- Imam Rahmadi
- Bangun Asmo Darmanto

Address:
Universitas Negeri Jakarta (UNJ)
Jl. Rawamangun Muka, Rawamangun, Jakarta Timur, Jakarta

Published by Universitas Negeri Jakarta in collaboration with Universitas Terbuka,
Universitas Pendidikan Ganesha, Universitas Mahendradatta

First edition, 2016
Protected by copyright law
Anyone is prohibit to copy and distribute this proceedings or portion of it in any form
without express written permission from the publisher.
ICT BASED LEARNING MODEL DEVELOPMENT FOR IMPROVING
STUDENTS INDEPENDENCY

Anan Sutisna
Department of Nonformal Education University State of Jakarta, Indonesia
email: ananplsun@yahoo.com, HP. 08161947175

ABSTRACT

This research aimed at discovering an instructional models to improve self-learning of
students package C program. Alternative selected to reach the objective of this research
to develop a instructional-based Information Computers and Technologi (ICT) model,
focusing at self learning. The instructional models was developed based on the fact and
the consideration that the process was on-going instruction. Regarded too conventional.
The ICT-based instructional models at C program package was developed applying
research and development. The result showed that ICT-based instructional models is
effective to improve the self-learning of students in the program package C Community
Learning Activities Center.

Key words: Instructional Based ICT, and Self Learning

I. INTRODUCTION

A. Background

National education system mandates of the organization in the form of formal education
(schooling) and Informal taking place outside the school system, and even that took place
in the household, thus serve as a legal basis for the provision of education in Indonesia.
One of the non-formal education programs is education equality. Education equality is
education that takes place outside the school system, but the competence of its graduates
is considered equivalent to the competence of graduates of formal education after the
equality test. Nevertheless, education equality as marginalized from public attention as a
form of its implementation in the community are not so popular. Whereas equality
education contributes significantly to donate the gross enrollment rate (GER) and net
enrollment rate (NER) of education, either Package A similarElementary / MI, Package
B equivalent Junior high / MTs, and Package C equivalent to senior high/MA (Suryadi:
2006).

In a situation of ever-changing society, ideally equal education is not only oriented to the
past and the present, which is always carried out with reference to formal education, the
group, using informants from among formal teacher, as well as the learning methodology
sentaralistik (teaching center), cause unknown together that characterized the educational
goals of equality is very diverse in terms of age level, economics, geography and socio-
cultural circumstances. Equality education learners are those who have critical thinking
rationally, meaning that what he did he profit-oriented at the time, without thinking about
the importance of education in life.

Educational paradigm that considers equality targets are those less fortunate and
marginalized, need to undergo a revolution and enlightenment. That the goal of equality
of education today is not only the disadvantaged and marginalized, but also those who
choose educational equality, as an option means that the goal of equality of education are the ones who are able to both intellectually and materially, simply because their opportunity and time are extremely limited. Therefore, an understanding of learning in educational equality that basically not only learn about the concepts, theories and facts, but are more concerned with applications in everyday life, the demand for education providers to be more wisely choose a tutor who has knowledge and experience of the models and learning strategy based on Information and Communication Technology (ICT), for example learning the C programming packages via the internet. So do not just recruit teachers in formal education, but need to pay attention to the mastery of ICT in learning.

Departing from the above-mentioned facts on the ground, challenging the non-formal education researchers, to continually assess and develop a strategy model and learning program that touches all levels of society are marginalized by formal education and serve the educational equality target groups who choose education equality, in particular the C programming packages with models and learning strategies to improve their independent learning through a learning model that use the internet, especially media interactive CD and e-book.

To support the independence of learners, the role of the tutor as a facilitator or a companion learners, in which the role as catalytic, process helper, resources linker, and solution giver. (Havelock: 1991). Independent learning has a purpose of (a) freeing learners from conventional learning patterns, (b) an opportunity to learn according to ability, and (c) establish a pattern of learning that guides students toward self-directed learning (Wedemeyer: 1979).

B. Problem Hypothesis

By considering the above background, the formulation of the problem in this study are as follows: (1) How did the conceptual model of ICT-based learning to improve student learning package C program learning independency? (2) How did the application of ICT-based learning model to increase the independence of learners in the program package C? and (3) Did ICT-based learning model effective in increasing the independence of learners on the package C program at Community Learning Center?

II. METHODS

A. Methods and Research Design

To achieve the objectives of this study, educational research and development was pursued as written by Borg and Gall (2003). Educational research and development (R & D) is a process to develop and validate educational products in the form of learning objectives, methods, curriculum, evaluation, either hardware, software or method or procedure. The ultimate goal of the R & D education is the creation of new products to improve the work performance of education and learning. Thus, the learning process becomes more effective and/or more efficiently, and in accordance with the demands.

In research and development primarily using three methods, namely survey, evaluative, and experimentation (Sugiyono, 2007: 316). Survey used in preliminary studies to determine the supporting conditions and practices associated with the product to be developed. While the use of the experimental method in this study refers to the Pre-experimental design. Where in the pre-experimental research method, the researchers
used the approach of one group pretest-posttest design or a pretest-posttest single group. This method was used by the consideration that the study results can be accurately known, because it could be directly compared with the situation before it was treated with the use of media interactive CD and e-book after treated with the use of media interactive CD and e-book.

Results of the use of media interactive CD and e-book was measured for the independence of learners to assess learning outcomes given before test (pretest) and after the test using interactive media CD and e-book (posttest), using the same material. At the final stage of the learning activities, students in the experimental group were given the test results of the posttest learning through the provision of material that has been learned through the use of media interactive CD and e-book. The results of the initial test (pretest) was compared with the final test (posttest) after getting treatment.

Experimental design consisted of a given class treatment or experimental group. Selection of experimental class based on the objectives and characteristics predetermined. When depicted in the flow of thought, the research design can be described as follows, (Sukardi: 2003). That is where there is a group given a pretest first, then given the treatment, after which the observed results. This design can be described as follows:

Remarks:
O1 = pretest value (the value at the time before the media were given with interactive CD and e-book)
O2 = posttest value (the value at the time after being given the use of media interactive CD and e-book)
X = Treatment with the use of media interactive CD and e-book
O2-O1 = Effect of media interactive CD and e-book.

B. Research Procedure
1. Preliminary Study
Preliminary study was conducted to determine and deepen learning models existing in several institutions of education providers in the province of Jakarta as Community Learning Center (CLC). The issues explored in the preliminary study include (1) Model of package C program learning that was done, (2) the methods and strategies applied by the organizers and tutors, (3) the activities of learners in participating learning activities, (4) the role of the tutor in the management and control of learning, (5) learning activities desired by learners, (6) activities assessment in learning, (6) follow-up study.

2. Preparation of Conceptual Model
Development of a conceptual model was done by procedure (1) determining the component model based on theoretical information, and (2) experts and practitioners validation. Determination of the components of the model was done by critically reviewing the results of preliminary studies and previous field exploration, attractive prescription from a literature review on the learning model, in particular the theory and practice of organizing institutions of learning in the package C program. The findings of the model are then tested for the accuracy and the implemented with the involvement of
experts in the field of learning to establish a model of the building as a whole. Components of the model developed consists of (1) Program Plan (RPP), (2) Learning Materials, and (3) management of learning that includes the role of students in learning, the role of the tutor in learning, learning strategies, instructional media, and assessment forms follow-up study.

3. Devices and Learning Model Substantial
Development of tools and models of substance done with the procedure (1) identification of devices and models content, (2) development of tools and models of substance, and (3) expert validation and field-testing device models. Identification of the substance and the model was done by analyzing the characteristics of ICT-based learning, and simultaneously associated with increased learning independence that had been prepared beforehand. The self-test device was conducted using the model of limited-field trial in cooperation with several agencies that manage learning package C in DKI Jakarta.

4. Effectiveness of Credible Learning Model Test
The test of the model to determine the effectiveness of the wider models through repetitive actions performed on the basis of opinion of Hopkins (1993) which includes (1) planning the implementation of learning strategies, (2) the implementation of learning, (3) the result of reflection and learning process, and (4) observation and learning process improvement. In this learning cycle the implementation required two cycles of learning with different learners and different learning institutions. First performed in the laboratory of the Department of PLS training in UNJ Campus, Second was done in the Community Learning Center. So it was possible for the variation and accuracy of more complete data to improve learning models that were considered effective in increasing the expected learning independence.

C. Location and Subjects Research
Research was done in the Community Learning Center (CLC), the study subjects were determined by purposive sampling as many as 12 education tutor package C, in the Community Learning Center in DKI Jakarta Province, where 10 tutors as respondents in the preliminary study and 2 tutors as respondents in the implementation of the model, with 14 students as the treatment group (treatment). This study was began in July 2013 until December, 2013.

D. Research Data and Instrument Collection
In undertaking this study, ranging from preliminary studies and pilot implementation of the model, data collection techniques used were: (1) observation, (2) questionnaire and (3) test. Tests administered before treatment (pretest) and after treatment (postest). Observations was made to the actual activity in the learning tutor which use media interactive CD and e-book. While the questionnaire used to dig the opinion of students on the model developed in model implementation (field tests).

E. Processing Techniques and Data Analysis
The data analysis was done qualitatively and quantitatively, to the implementation of the learning model. Qualitative analysis was used to describe the results of preliminary research, quantitative analysis related to feasibility and the influence of the model developed. Quantitative analysis used was statistical analysis (Iskandar: 2009). Activity in the data analysis includes data grouping based on variables and type of
respondents, tabulate the data based on the variables of all respondents, presents data for each variable studied, perform calculations to answer the problem formulation, and take measures to test the hypotheses that have been proposed.

The analysis of the data was done to test the hypothesis testing study using two average similarity: a test of two parties, namely the t test. Data obtained from the data through a pretest and posttest questionnaires. The t formula was compared with $t_1 - \alpha$, where $t_1 - \alpha$ obtained from the t distribution list with a chance $(1 - \alpha)$ and $dk = (n_1 + n_2 - 2)$. To test the hypothesis, which was to see whether there was any difference in the results of independent learning arithmetic before experimental observations with the results of observation count independence after the experiment used the t test with significance level $\alpha = 0.05$.

Formula formula t test are as follows:

Remarks:
$t = \text{index of prettes-posttest difference scores}$
$x_1 = \text{The mean score of the posttest}$
$x_2 = \text{The mean score of the pretest}$
$s_1^2 = \text{Variance of pretest scores}$
$s_2^2 = \text{Variance of posttest scores}$
$n_1 = \text{Number of samples}$
$n_2 = \text{Number of samples}$

IV. RESULTS
Description Of Preliminary Study Results
The first aspect of the learning plan includes: (1) Identify the topic subjects given 60%, (2) Perform preparation of making a plan before learning 70%, (3) determine the learning strategies according to the characteristics of learners 50%, (4) The accuracy of the election 60% of learning materials, (5) Systematic preparation of learning materials 40%, (6) Accuracy of objectives formulation that will be achieved 50% and (7) Suitability of media with the characteristics of learners 10%.

Second, aspects of the learning organization consists of (1) The organization of the learners in the use of instructional media 60% and (2) setting the learning activities using an interactive CD and e-book 20%.

Third, Aspects of the implementation of the learning process consists of (1) Submission of the objectives to be achieved when opening a lesson 50%, (2) the presentation of the material in a systematic way of learning 60%, (3) Compliance with the learning media the characteristics of learners 40%, (4) Assessment the use of media in teaching 20%, (5) Compliance with the media needs of the students 40%, (6) use of media in accordance with the purpose pembelajaran 10%, (7) the use of the method according to the media that was used 40%, (8) the use of appropriate media with the characteristics of learners 50%, (9) the use of time in proportion to the opening, core and cover 30%, (10) Compliance with the subject matter experience of the learners 50%, (11) learners are actively involved
in the learning 30%, (12) the existence of reinforcement varies with the exact time and consistent 30%, (13) Provision conclusion at the end of the study 60%, (14) the use of language in learning media was easy to understand 40%, (15) media containing substances subject matter which will be taught 20% and (16) learning environment with media used was very dynamic 60%.

Four, Aspects of learning assessment consisted of (1) Instructional media help clarify learning materials 10%, (2) the accuracy of the procedure and the type of learning outcome assessment 60%, (3) Conformity assessment tool with 70% of the material presented, (4) Writing items outlined in the lattice and use language that is easily understood by 50% and (5) Carry out assessment of learning outcomes in the learning process by 50%.

Conceptual Model of Learning
The procedure adopted in the implementation of ICT-based learning model, through three stages, namely: (1) planning, (2) implementation, and (3) evaluation. Each stage can be explained as follows:

1) Planning stage in the implementation of this model through several activities, among others: (a) identification of learning needs, where tutors and learners determine what material will be delivered in accordance with the learning curriculum of high school equivalent to package C program. (b) Establish the type of ICT-based instructional media, namely the e-book and an interactive CD. Where media e-book contains material about the subject of Sociology Lesson social conflicts, while media interactive CD contains material about English lessons with the topic of Preposition.

2) Implementation stage of ICT-based learning, tutor acts as a facilitator and acts as a learning resource to facilitate the activities of the learning process with the steps: (1) presents the objectives (competencies) to be achieved, (2) briefly describe the material; (3) describe the steps of using e-books and interactive CD media, thus providing learning experiences to learners, the use of media to facilitate the learners to undertake independent learning; and (4) conduct independent learning using the medium of e-books and interactive CD learning in the implementation of the package C.

Learners of package C program acting individually or in groups to perform a collaborative learning tutors in conducting the following steps: (1) listening carefully to the description of the material; (2) perform the learning activities using the e-books and interactive CD with appropriate material taught by the tutor; (3) conduct independent learning using the medium of e-books and interactive CD in learning activities through the steps of: (a) computer, (b) carry out independent learning, (c) to operate a computer to use the media e-book and CD interactions, and (d) plan the next stage of learning independently. These steps are taken with the aim for further enhancing the independence of learners in the learning actually.

4) Evaluation stage was done based on criteria and instruments to be used to assess the effectiveness of the learning model. Evaluation of the effectiveness of the model pursued through three stages of assessment, namely (1) an assessment of the learning outcomes (output); (2) an evaluation of the implementation process model, and (3) evaluation of the impact of the implementation of the model (outcomes). Evaluation of learning outcomes was conducted to measure the effectiveness of learning through the success of the initial test (pre-test) to determine the level of mastery of the material studied, the trials
conducted prior to implementation, and testing of the final (post-test) was performed at the end of the whole process of learning as an end, through the test. Evaluation of the learning process was done to measure the effectiveness of the learning model, through a questionnaire about the opinions of learners in a model of learning developed. Evaluation of the impact of the implementation of the model (outcomes), performed on a reflective activity to determine the independence of the study, carried out by distributing questionnaires to the learners in the package C study group.

**Implementation of Learning Model**

Implementation of this model to prove how big of ICT-based learning model to give effect to the increased independence of learners of package C program, after which the two parts of the t test (two tails), with a significance of $\alpha = 0.05$ to test the hypothesis, that was to see whether or not the difference in the results of independent learning arithmetic scores before calculating the results of experiments with independent learning scores after the experiment with a description of the data as follows:

- **Data of Pretest and Posttest Scores**

<table>
<thead>
<tr>
<th>Sample number</th>
<th>$Pretest\ score$ ($O_1$)</th>
<th>Value</th>
<th>$Posttest\ score$ ($O_2$)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17</td>
<td>57</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>57</td>
<td>29</td>
<td>97</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>57</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>47</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>22</td>
<td>73</td>
<td>25</td>
<td>83</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>63</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
<td>63</td>
<td>29</td>
<td>97</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>37</td>
<td>25</td>
<td>83</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>40</td>
<td>19</td>
<td>63</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>37</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>11</td>
<td>18</td>
<td>60</td>
<td>27</td>
<td>90</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>60</td>
<td>25</td>
<td>83</td>
</tr>
<tr>
<td>13</td>
<td>12</td>
<td>40</td>
<td>19</td>
<td>63</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>37</td>
<td>19</td>
<td>63</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>218</strong></td>
<td><strong>728</strong></td>
<td><strong>324</strong></td>
<td><strong>1079</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>15.6</strong></td>
<td><strong>52</strong></td>
<td><strong>23.2</strong></td>
<td><strong>77</strong></td>
</tr>
</tbody>
</table>

2. Hypothetical model testing

Research hypothesis testing conducted in this study, namely: $H_0$: There is no effect of the use of instructional media interactive CD and e-book to the increased independence of learners at CLC C package program in Jakarta. $H_1$: There is an influence in the use of instructional media interactive CD and e-book to the increased independence of learners.
at CLC C package program in Jakarta. Based on the hypothesis filing, data research showing that the posttest mean score greater than the mean score of the pretest \((x_1 > x_2)\). The calculation of hypothesis testing can be seen in the table below:

Table 2
Statistical Calculation of Pretest and Posttest Scores

<table>
<thead>
<tr>
<th>Sample number</th>
<th>Pretest ((x_2))</th>
<th>((x_2-\bar{x}_2)^2)</th>
<th>((x_2-\bar{x}_2)^2)</th>
<th>Posttest ((x_1))</th>
<th>((x_1-\bar{x}_1)^2)</th>
<th>((x_1-\bar{x}_1)^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17</td>
<td>1.21</td>
<td>1.47</td>
<td>21</td>
<td>1.50</td>
<td>2.25</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>1.21</td>
<td>1.47</td>
<td>21</td>
<td>1.50</td>
<td>2.25</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>1.21</td>
<td>1.47</td>
<td>20</td>
<td>1.43</td>
<td>2.04</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>1.00</td>
<td>1.00</td>
<td>21</td>
<td>1.50</td>
<td>2.25</td>
</tr>
<tr>
<td>5</td>
<td>22</td>
<td>1.57</td>
<td>2.47</td>
<td>25</td>
<td>1.79</td>
<td>3.19</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>1.36</td>
<td>1.84</td>
<td>24</td>
<td>1.71</td>
<td>2.94</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
<td>1.36</td>
<td>1.84</td>
<td>29</td>
<td>2.07</td>
<td>4.29</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>0.79</td>
<td>0.62</td>
<td>25</td>
<td>1.79</td>
<td>3.19</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>0.86</td>
<td>0.73</td>
<td>19</td>
<td>1.36</td>
<td>1.84</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>0.79</td>
<td>0.62</td>
<td>21</td>
<td>1.50</td>
<td>2.25</td>
</tr>
<tr>
<td>11</td>
<td>18</td>
<td>1.29</td>
<td>1.65</td>
<td>27</td>
<td>1.93</td>
<td>3.72</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>1.29</td>
<td>1.65</td>
<td>25</td>
<td>1.79</td>
<td>3.19</td>
</tr>
<tr>
<td>13</td>
<td>12</td>
<td>0.86</td>
<td>0.73</td>
<td>19</td>
<td>1.36</td>
<td>1.84</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>0.79</td>
<td>0.62</td>
<td>19</td>
<td>1.36</td>
<td>1.84</td>
</tr>
<tr>
<td>(\Sigma)</td>
<td>218</td>
<td>18.20</td>
<td>324</td>
<td>39.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\bar{x})</td>
<td>15.6</td>
<td></td>
<td></td>
<td>23.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(s^2)</td>
<td>1.40</td>
<td></td>
<td></td>
<td>3.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>1.18</td>
<td></td>
<td></td>
<td>1.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis testing was conducted using t-test formula:

\[ t = \]

\[ t = 23.14 - 15.6 \]
\[ \sqrt{\frac{3.01}{14} + \frac{1.40}{14}} \]
\[ = 7.5 \]
\[ \sqrt{4.41} \]
\[ = 7.5 \]
\[ 2.1 \]
\[ t_{\text{count}} = 3.57 \]

By \( t_{\text{count}} = 3.57 \), then look for \( t \) table with degrees of freedom (df) = \( n1 + n2 - 2 \), i.e. \( 14 + 14 - 2 = 26 \). So the obtained table = 1.706. So the conclusion \( t = 3.57 > \) table = 1.706 with significance level of 0.05. Thus, \( H_0 \) was rejected and \( H_1 \) was accepted, which means there was the influence of the use of instructional media interactive CD and e-book to the increased learners independence at CLC package C program in Jakarta.

- Data Value pretest and posttest Value

Table 3
Difference in pretest and posttest Value

<table>
<thead>
<tr>
<th>No. Resp</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Value difference</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>57</td>
<td>70</td>
<td>13</td>
<td>22.8</td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>97</td>
<td>40</td>
<td>70.2</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>67</td>
<td>10</td>
<td>17.5</td>
</tr>
<tr>
<td>4</td>
<td>47</td>
<td>70</td>
<td>23</td>
<td>48.9</td>
</tr>
<tr>
<td>5</td>
<td>73</td>
<td>83</td>
<td>10</td>
<td>13.7</td>
</tr>
<tr>
<td>6</td>
<td>63</td>
<td>80</td>
<td>17</td>
<td>27.0</td>
</tr>
<tr>
<td>7</td>
<td>63</td>
<td>97</td>
<td>34</td>
<td>54.0</td>
</tr>
<tr>
<td>8</td>
<td>37</td>
<td>83</td>
<td>46</td>
<td>124.3</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
<td>63</td>
<td>23</td>
<td>57.5</td>
</tr>
<tr>
<td>10</td>
<td>37</td>
<td>70</td>
<td>33</td>
<td>89.2</td>
</tr>
<tr>
<td>11</td>
<td>60</td>
<td>90</td>
<td>30</td>
<td>50.0</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
<td>83</td>
<td>23</td>
<td>38.3</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>63</td>
<td>23</td>
<td>57.5</td>
</tr>
<tr>
<td>14</td>
<td>37</td>
<td>63</td>
<td>26</td>
<td>70.3</td>
</tr>
<tr>
<td>Total</td>
<td>728</td>
<td>1079</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>52</td>
<td>77</td>
<td>25</td>
<td>48.2</td>
</tr>
</tbody>
</table>

Based on the table above, that the pretest mean value of 14 learners experimental group was 52 where the highest value and the lowest value of 37. 73 This suggests that the relatively less degree of independence. While the average value obtained by the experimental group was 77 where the highest value and the lowest value of 97 63. Overall, learning independence after a given treatment (treatment) are classified into the good category. Thus an increase in the average number of students pretest and posttest ie
from 52 to 77. So the average increase in value by 25 points, or 48.2% can be categorized in the category Good Enough assessment.

So with regard to the outcome of hypothesis testing and the result of the difference between pretest and posttest values it can be concluded that effective ICT-based learning model to enhance the independence of learners program package C at Community Learning Center in Jakarta.

V. DISCUSSION

Research development in the application of learning models, have obtained findings that demonstrate the effectiveness of the fulfillment of the needs of learners in improving equality of C package learning independence. Therefore, the significance of the results of this model development study has both theoretical implications in increasing repertoire of knowledge, as well as practical for operational policies that can be applied in the implementation of learning C packages programming at CLC.

In the development of informal school education, this instructional model contribute to the strengthen of learning theories which can add to their knowledge in the learning dimension of educational equality. Learning as a process of human resource development is critical (human capital), which means that the learning programs are designed and implemented, basically aims to develop the ability of individuals or groups, in order to improve the intellectual.

ICT-based learning model with an interactive CD media development and e-books used in learning strategy, in fact, may increase the independence of learners in educational equality of C package at CLC. As empirical findings of the application of this model to show its effectiveness for the fulfillment of the needs of learners in an effort to increase the independence of learning, so increase learning motivation and creativity, thereby increasing learning achievement of learners. This in turn will support the effective implementation of educational equality, especially in C package at CLC.

ICT-based learning model is developed, the implementation has been shown to be effective in improving student learning independence of C package program, and can be accepted as an alternative learning program which are more contextual, effective and efficient in accordance with the conditions of learners. In the implementation, the learning model developed showed to be effective in improving student learning independence, so it can be used as alternatives to help improve the ability of students in CLC package C, so that the implementation of educational programs outside the school evolve toward higher quality, and more effective. CLC tutors generally must be supported by adequate amounts, but in the quality of learning is still weak. On the basis of this, the need to boost the quality of teaching is better and more effective.

Referring to the model of ICT-based as an effort to improve learning independence, the role of the tutor based on the study of theoretical and empirical studies in the learning activities function as: (1) raise awareness of the learners participants as actors and their importance for increasing independence in learning; (2) assist learners as learners to be able to develop their potential, according to talents and interests; (3) raise awareness learners in the importance of self quality in more efficiently in order to achieve the feat.

All three of these functions indicate the tutor as an agent of learning, especially in the administration of the package C program in CLC lead to better learning. This is in accordance with one of the principles of lifelong education according Sudjana (2005:
217), that school education was developed based on a principle of that, learning to obtain, renew, and / or increase the knowledge, attitudes and skills that have been owned by citizens in accordance with the continuous changes throughout life.

How tutors are there to provide qualified learning, so the CLC is still able to provide optimal learning services to students, including equality of educational services C. Altematifnya way is to equip the teaching skills by using the practical media in their innovative learning through ICT-based learning.

The findings of this study showed that the average value of the independence of learners increased C package program is quite good. It is characterized by the acquisition of learning outcomes that showed positive improvement by using media interactive CD and e-book in learning tutor, as well as the enthusiastic response of students to the application of the developed learning model. On the basis of the findings in this study, the learning model that was developed was effective to increase the independence of learners at CLC C program package.

VI. CONCLUSION

Based on the discussion of the above results, the conclusion can be drawn as follows:

• The use of ICT-based media on packages C program learning at CLC is still weak, generally do not use ICT-based media, so lack of a solution to the limited time of classical face-to-face learning. The use of media by tutor was still weak due to very limited facilities owned by the CLC.

• Conceptual Model of ICT-based learning is a learning model that uses media interactive CD and e-book on the teaching and learning process, and it is also a learning alternatives to increase the independence of learners at CLC C program package.

• The results of the implementation of ICT-based learning model developed was quite effective, which affects 48.2% on independence increase of learners at CLC C program package.

That is the conclusion of this study and the authors would like to thank Mr. Prof., Dr., Bedjo Sujanto, Pd, as Rector UNJ. Prof Dr Mulyana, M, Pd as Chairman of the Research Institute and Prof Dr Yufiarti M.Psi as Research Internal Reviewers as well as friends, Lecturer in Department of Nonformal Education, State University of Jakarta, which can not be mentioned one by one, the authors would like to thank.

REFERENCES